

REMARKS

The Office Action rejected claims 1-3, 5-10, and 12-41. By the foregoing amendment, claim 42 is added, claims 1, 8, 15-20, 29-31, and 39-41 are amended, and no claims are canceled. Claims 1-3, 5-10, and 12-41 remain.

Claim Rejections - 35 USC § 103

The Office Action rejected claims 1-3, 5-10, and 12-41 as being unpatentable over U.S. Patent Number 5,452,882 to Wunning in view of U.S. Patent Number 6,394,793 to Bunge and U.S. Patent No. 4,767,473 to Berg. Applicants respectfully traverse the rejection.

Wunning discloses the quenching of steel roller bearing rings. There is no suggestion for using the Wunning apparatus and methods on a nickel alloy forging such as a turbine engine blade disk. The present independent claims have been amended to identify the nickel alloy. New dependent claim 42 identifies the forged disk.

At the end of paragraph number 2 of the Office action, it was merely asserted that "variable cooling techniques to promote uniformity or variation in physical properties are well known and conventional in the art as evident by Berg and Bunge and hence would be obvious to incorporate when using cooling method of Wunning which also already teach variable and localized cooling rates." However, the relatedness of the references and the asserted "well known" status have not been demonstrated. Although Bunge may be in the present art, Berg relates to aluminum alloy wheel rims and Wunning relates to steel roller bearings. Thus, the references are drawn from three distinct fields both as to materials and as to products. Different considerations attend these different fields. Furthermore, the existence of Bunge itself clearly

establishes the impropriety of the combination. Bunge substantially post-dates both Wunning and Berg. Accordingly, if the combination had been obvious, it would have been reflected in Bunge.

At paragraph number 8 of the Office action, the Wunning nozzle diameter of 0.5 to 10.0mm and the specific example of 2mm (0.0787") were noted. The broad range of Wunning is so broad as to indicate Wunning did not appreciate the particular benefits of the impingement cooling subset of the forced convection regime recited in the present independent claims.

Further, there is no narrower range singled out in Wunning, again indicating a failure to conceive the present invention.

The specific 2mm example of Wunning is outside the claimed range of dependent claims 39-41. This does not render the claimed range obvious even if it were close enough to potentially achieve some of the benefits of impingement cooling. The broad range of Wunning, if anything, teaches away from the presently-claimed range by having substantial upside on size. If anything, this would lead one to pursue larger holes than the specific example.

In light of the foregoing, Applicants submit that the claims are now in condition for allowance. Applicants request that the Examiner reconsider and withdraw the rejection. Applicants solicit the allowance of Claims 1-3, 5-10, and 12-42 at an early date.

Respectfully submitted,



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